

Up To Date

NASA's Independent Verification & Validation Program
Educator Resource Center Newsletter
Fairmont, West Virginia

March 2012

Inside this issue:

Upcoming Workshops	2
Astrobiology	2
TARC Launch	2
Air Force ROTC	3
Science/Engineering	3
Quote of the Month	4
Where in WV is the ERC?	4

Girls STEM Workshop



Left: Students collaborate to determine the scale distance, size and age of the universe.

Twenty-seven girls from Preston County spent an entire day at NASA IV&V's Educator Resource Center doing activities that involved science, engineering, technology and math.

During a pizza lunch, the students interacted with Joelle Loretta, Rhonda Fitz, Kathy Malnick and Amy Robinson, engineers and computer scientists from IV&V, who explained their work and how they arrived at their present career positions. Challenging the girls to push themselves and to explore a wide variety of courses, the speakers also let it be known that you can have a great science or engineering career and yet stay close to family in WV.



Above: A student follows a sunspot as it moves across the face of the sun.

Christina Moats, IV&V Human Exploration Office lead, shared the mission of IV&V with the girls and also told her career story.

Marcie Raol, from the Mid-Atlantic Aerospace Complex, led students in a math based simulation activity. The girls became air traffic controllers who had to calculate safe landing patterns for converging airplanes. They also learned about the many careers available in the aerospace field.

Dr. Amy Keesee, WVU physics research professor, used iPads and NASA apps to teach about Space Weather and the physics of what is going on in our closest star, the Sun.

Amy Phillips, ERC intern in charge of student programming who planned and coordinated this

STEM day, and Pam Casto, ERC education specialist, engaged the students in various STEM activities and taught the girls to use Sunspotter and Solar telescopes.

A teacher chaperone commented about the experience: "The goal is to keep the girls engaged in math and science and I feel the activities today will motivate our girls to set their goals high, keep an open mind, and to not give up when faced with tough challenges."

Left: The solar telescope allowed students to see a solar flare in progress as well as directly viewing sunspots.



Above: Kathy Malnick, computer scientist, explains her career path and job at IV&V.

Below: Marcie Raol challenges the girls to do the math and science involved in being an air traffic controller.



Right: Students use NASA apps to view photos from the Solar Dynamic Observatory that were taken only minutes previously.

The ERC's new iPad lab allows students to create movies of what they have personally seen and heard as they learn about Space Weather.



Upcoming Workshops and Events **Astrobiology Workshop**

Apr. 17 Student Robotics Workshop (filled)

Apr. 17 Basic Rocketry.....5 PM-8 PM

Apr. 21 Astrobiology Workshop.....10 AM-4 PM

Apr. 21 Bring Hubble Space Telescope Discoveries to Your Classroom Webinar11:00 AM-12:30 PM

Apr. 24 Student Rocketry Workshop (filled)

May 5 Afterschool Universe.....10 AM-4 PM

The NASA Astrobiology Institute, in collaboration with the Georgia Institute of Technology, Montana State University, the NASA JPL Solar System Educators Program, and NASA IV&V's Educator Resource Center is hosting a workshop for educators on astrobiology and the origin of life. This workshop will present the latest research in the interdisciplinary field of astrobiology, focusing on how life began on Earth and the possibility of life elsewhere in the solar system. The content is geared toward middle school and high school educators but all with an interest in astrobiology are encouraged to attend. **Each participant will receive the film "Exploring the Origins of Life" plus many other astrobiology posters and activities to use in the classroom.** To register online go to <http://erc.ivv.nasa.gov> and click on workshop registration. For more information contact Pam Casto at pamelacasto@ivv.nasa.gov

Team America Rocket Challenge Launch

The Team America Rocketry Challenge (TARC) is the world's largest student rocket contest, sponsored by the Aerospace Industries Association (AIA) and the National Association of Rocketry (NAR). It was created in the fall of 2002 as a one-time celebration of the Centennial of Flight, but the enthusiasm about the event was so great that AIA and NAR were asked to hold the contest annually.

Approximately 7,000 students from across the nation compete in TARC each year. Teams design, build and fly a model rocket that reaches a specific altitude and duration determined by a set of rules devel-



oped each year. The contest is designed to encourage students to study math and science and pursue careers in aerospace.

The top 100 teams, based on local qualification flights, are invited to The Plains, VA in May for the national finals. Prizes include \$60,000 in cash and scholarships

split between the top 10 finishers. NASA invites top teams to participate in their Student Launch Initiative, an advanced rocketry program conducted at Marshall Space Flight Center in Huntsville, AL. AIA member companies, such as Lockheed Martin and Raytheon have sponsored additional prizes such as scholarship money and a trip to an international air show. (Source: www.rocketcontest.org)

In West Virginia, the NASA IV&V ERC coordinates trainings, summer camps, and launch festivals to assist teams in designing model rockets that can compete at the national level. This year WV has nine



competing teams from Shinnston, Clarksburg, Shenandoah Junction, Hurricane, Martinsburg, Glenville, Farmington, and Morgantown. This program could not be successful without the support of the MAAC, WVU, Aurora, and NASA who fund team



registration, help purchase rocket components and engines, sponsor the summer camp, mentor and judge teams. We hope to see WV at nationals! It is out of this world. ;-)

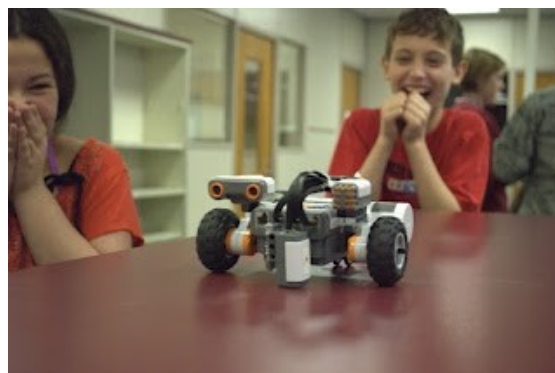


ROTC Air Force Cadets in the Classroom

WVU's ROTC Air Force Cadets have received training on several of the ERC's STEM kits and gone boldly out to assist WV teachers in bringing STEM content to the classroom. Shown in the top four photos are Cheat Lake Elementary students and the cadets enjoying an afternoon of robotics.

The cadets also assisted at the State First Lego League competition. The bottom left photo captures the cadets helping to wire the video equipment for the competition.

The bottom center and right photos are of the cadets building rockets and trying out their programming skills as they were trained on Basic Rocketry and NXT Robots.



Boone County Teachers, Students Benefit from Partnership with Clay Center and the Educator Resource Center



The Clay Center for the Arts and Sciences of West Virginia received a grant to provide enrichment opportunities for teachers in Boone County. As part of that grant the ERC travelled to Boone County and provided trainings on nine equipment loan kits. Over a period of two months teachers met on after school on selected Fridays to become certified on a variety of kits.

Teachers may now check out not only the ERC equipment to use in their classrooms but also, certain equipment from the Clay Center which will enhance classroom instruction in STEM fields.

Right: Educators begin creating and programming WeDo robots. Below: Dancing Birds vary dancing speed and direction by changing size of



pulley wheel or configuration of pulley ropes.

The WeDo training shown in these photos allows students K-6 to explore physical science, technology, language arts, and math using robotics.

In addition to providing training for special grants, afterschool programs, 4-H, and scouting programs, the ERC has for years provided training for in-service days in August before school starts and during other in-service days throughout the school year. If your county or school would like to schedule such training please contact the ERC using the information on the back of this newsletter.

ERC Staff

Todd Ensign ...Program Manager

todd.ensign@ivv.nasa.gov 304-367-8438

Pam Casto...Education Specialist

pam.casto@ivv.nasa.gov 304-367-8436

Amy Phillips...Graduate Assistant for Student Programs

amy.phillips@ivv.nasa.gov 304-367-8379

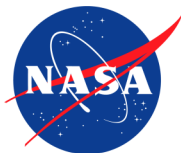
Josh Revels...ERC Intern / IV&V Librarian

josh.revels@ivv.nasa.gov 304-367-8251

Nicole Culp...ERC Intern / Equipment Loan

nicole.culp@ivv.nasa.gov

The NASA Independent Verification and Validation Program Educator Resource Center's goal is to serve teachers, informal educators, and pre-service teachers to enable them to reach their goals. Through a grant with Fairmont State University, the NASA IV&V Program ERC provides materials, equipment for loan, and professional development workshops for informal and formal educators both at the facility and around the state of West Virginia that reflect NASA's current research and technology.



Links to Student Competitions

First Lego League Robotics:

<http://www.firstlegoleague.org/>

Real World Design Challenge:

<http://www.realworlddesignchallenge.org/>

Team America Rocketry Challenge:

<http://rocketcontest.org/>

Green Aviation Contests:

<http://aero.larc.nasa.gov/competitions.htm>

Quote of the Month:

Education is...

Hanging around until you've caught on.

Robert Lee Frost (1874-1963) American poet.

Man's going forward from cocksure ignorance to thoughtful uncertainty.

Kenneth G. Johnson (1922-2002) American educator, semanticist.

[Education] consists mainly in what we have unlearned.

Mark Twain (1835-1910) American writer.

Education is a progressive discovery of our ignorance.

Will Durant (1885-1981) U.S. author and historian.

Where in WV is the ERC?

March Workshops in Red

March Equipment Loans in Blue

To schedule a workshop:

Contact the ERC by calling 304-367-8436 or emailing:

pamela.casto@ivv.nasa.gov

To schedule equipment for loan: First check the equipment loan calendar on the ERC website to see if the equipment is available for the dates desired. Then email Nicole Culp who will schedule the dates.

nicole.culp@ivv.nasa.gov

Check us out on Facebook:

[NASA IV&V Facility Educator Resource Center](#)

A succession of eye-openers each involving the repudiation of some previously held belief.

George Bernard Shaw (1856-1950) British dramatist, critic, writer.

